No. 200000122

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Holden's Foundation Seeds L.L.C.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR USING IT IN ING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY ION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN, FIELD

'LH244'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirtieth day of January, in the year two thousand two.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions.* FORM APPROVED - OMB NO. 0581-

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Ac 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995

Application is required in order to determine if a plant variety protec certificate is to be issued (7 U.S.C. 2421). Information is held confide until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) *(as it is to appear on the Certificate)*
HOLDEN'S FOUNDATION SEEDS L.L.C.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
Ex4713

3. VARIETY NAME
LH244

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
503 S. MAPLEWOOD AVENUE
PO BOX 839
WILLIAMSBURG, IA 52361

5. TELEPHONE *(include area code)*
(319)668-1100

6. FAX *(include area code)*
(319)668-2453

FOR OFFICIAL USE ONLY
VP NUMBER 2000122

FILING DATE: 1-7-00

7. GENUS AND SPECIES NAME
ZEA MAYS

8. FAMILY NAME *(Botanical)*
GRAMINEAE

9. CROP KIND NAME *(Common name)*
CORN, FIELD

FEES RECEIVED
FILING AND EXAMINATION FEE: $ 2450 JS
DATE 1-7-00
CERTIFICATION FEE: $ 320.00
DATE 1/22/02

10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.) (Common name)*
LIMITED LIABILITY COMPANY

11. IF INCORPORATED, GIVE STATE OF INCORPORATION

12. DATE OF INCORPORATION
DECEMBER 1, 1997

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
MR. MARK ARMSTRONG
HOLDEN'S FOUNDATION SEEDS L.L.C.
503 S. MAPLEWOOD AVENUE
PO BOX 839
WILLIAMSBURG, IA 52361

14. TELEPHONE *(include area code)*
(319)668-1100

15. FAX *(include area code)*
(319)668-2453

16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED *(Follow instructions on reverse)*

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of the Variety
d. ☒ Exhibit D. Additional Description of the Variety *(Optional)*
e. ☒ Exhibit E. Statement of the Basis of the Applicant's Ownership
f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in an approved public repository)*
g. ☒ Filing and Examination Fee ($2,450), made payable to "Treasurer of the United States" *(Mail to PVPO)*

17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)*
☐ YES *(If "yes," answer items 18 and 19 below)* ☒ NO *(If "no," go to item 20)*

18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☐ NO

19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☐ YES *(If "yes," give names of countries and dates)* ☒ NO

21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT *(Owner(s))*		SIGNATURE OF APPLICANT *(Owner(s))*	
Gary Arthur			
NAME *(Please print or type)*		NAME *(Please print or type)*	
GARY ARTHUR			
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
PRESIDENT	1/3/00		

2000 0 0122

Origin and Breeding History of the Inbred

Exhibit A

The development of LH244 was initiated by making the single cross LH197 x LH199. This F1 single cross was then backcrossed with LH197. This F2 combination, $LH197^2$ x LH199 was then selfed and the pedigree system of plant breeding was then used in the development of LH244. Yield, stalk quality, root quality, disease tolerance, late plant greenness, late plant intactness, ear retention, pollen shedding ability, silking ability and corn borer tolerance were the criteria used to determine the rows from which ears were selected in the development of LH244.

LH197 and LH199, the progenitors of LH244, are both proprietary field corn inbred lines developed by Holden's Foundation Seeds, LLC. In November of 1991, Holden's applied for a certificate of Plant Variety Protection for LH197 and LH199. On April 30, 1992, LH197 was issued certificate #9200020 and LH199 was issued certificate #9200024. A utility patent issued from the United States Patent Office also protects both inbreds. LH197 is protected by U.S. patent #5,304,716 and LH199 is protected by U.S patent #5,304,715. Both patents were issued on April 19, 1994.

On the following pages are a summary and description of the development of LH244. Also included are copies of pages from Holden's Foundation Seeds, Inc. nursery books. The rows associated with the development of LH244 have been highlighted.

LH244 has shown uniformity and stability for all traits described in Exhibit C. It has been self-pollinated and ear-rowed a sufficient number of generations, with careful attention to uniformity of plant type to ensure homozygosity and phenotypic stability. The line has been increased both by hand (Iowa 1997 and 1998) and sibbed in isolated production fields (Hawaii 1999 and Iowa 1999) with continued observations for uniformity and stability. Mark F. Armstrong, the originating plant breeder, has observed LH244 all three generations it has been increased. The line is uniform, stable and no variant traits have been observed or are anticipated in LH244.

Origin and Breeding History of the Inbred
LH244=Ex4713=LH197(2) x LH199

Field/Row	Pedigree	Location	Year
East Mumm	LH244	Iowa	1999
Tamura	LH244	Hawaii	1999
25840-25851	Ex4713	Iowa	1998
21724	LH197(2) x LH199 @7	Iowa	1997
35506	LH197(2) x LH199 @6	Iowa	1996
39637	LH197(2) x LH199 @5	Hawaii	1996
41014	LH197(2) x LH199 @4	Iowa	1995
4452	LH197(2) x LH199 @3	Hawaii	1995
10857	LH197(2) x LH199 @2	Iowa	1994
9958	LH197(2) x LH199 @1	Iowa	1993
32561	LH197)(LH197 x LH199	Hawaii	1993
41742 41739	LH197 LH197 x LH199	Iowa	1992
40570 40572	LH197 LH199	Iowa	1991

Novelty Statement

Exhibit B

LH244 is most similar to LH197. However, the most distinguishing difference is plant height. LH244 is shorter in plant height than LH197. Enclosed is data collected at Williamsburg, Iowa, from two different planting dates in 1999, comparing the plant heights of LH244 and LH197 at 50 observations for each planting date. The data suggests a significant difference at the 1% probability level according to a paired T test in both comparisons. Means show that on average LH244 is shorter in plant height than LH197.

The silk color of both LH244 and LH197 is red however the silk color of LH244 is lighter red in color than the LH197 silk color. When using the Munsell Color Charts for Plant Tissues as a reference, the silk color of LH244 would be classified as 2.5R 5/6 while the silk color of LH197 would be classified as 5R 3/8.

The ears of LH244 appear to be more slender and tapered than the ears of LH197 which appear more girthy and blocky.

TWOSAMPLE T FOR LH244 Plant Height VS LH197 Plant Height
1999 Imhoff

Variety Name	Average	Standard Deviation	Sample Size	Analysis Type	Statistic	Probability Value
LH244	215.40	6.61	50	T-test	T=-5.50	0.0000
LH197	223.16	7.48	50		DF=96	

Year of tests:	1999 Imhoff
Location of tests:	Williamsburg, Iowa

Mann-Whitney Confidence Interval and Test

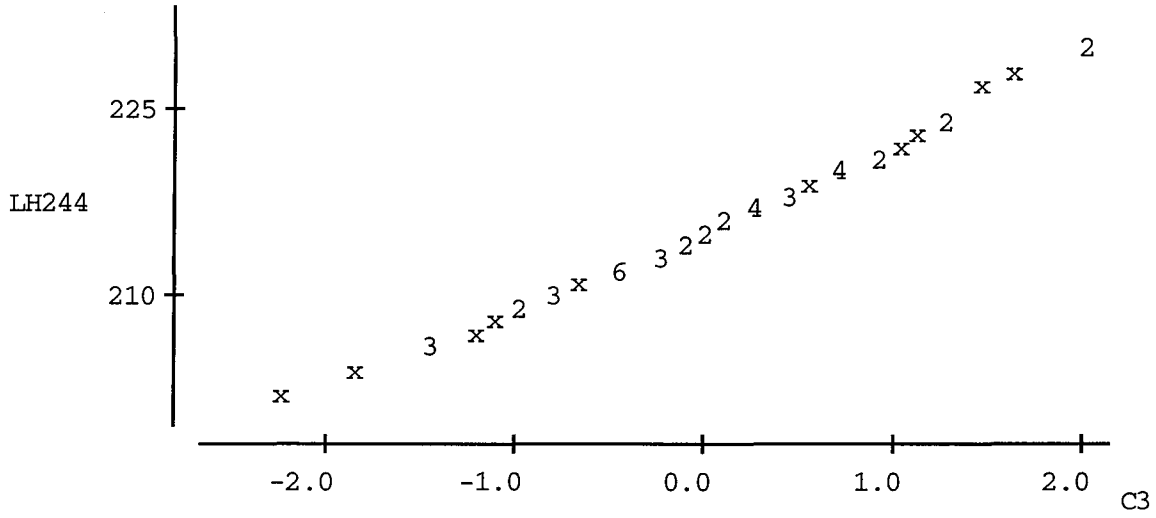
LH244 N = 50 Median = 215.00
LH197 N = 50 Median = 221.50

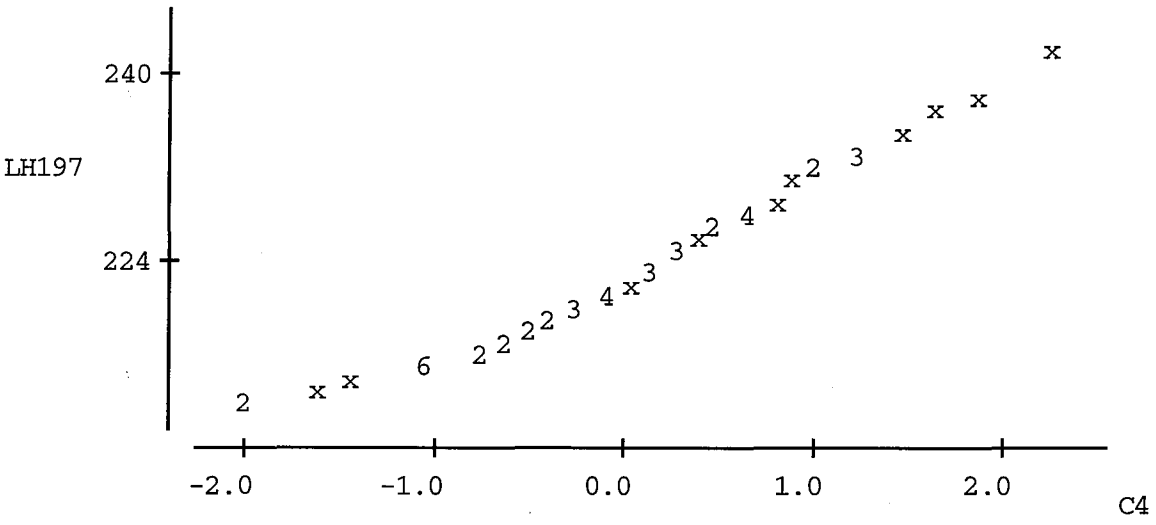
Point estimate for ETA1-ETA2 is -7.50
95.0 pct c.i. for ETA1-ETA2 is (-10.00,-5.00)

W = 1831.5

Test of ETA1 = ETA2 vs. ETA1 n.e. ETA2 is significant at 0.0000
The test is significant at 0.0000 (adjusted for ties)

LH244 Plant Height VS LH197 Plant Height
1999 Imhoff





TWOSAMPLE T FOR LH244 Plant Height VS LH197 Plant Height
1999 E. Fairground

Variety Name	Average	Standard Deviation	Sample Size	Analysis Type	Statistic	Probability Value
LH244	232.38	7.13	50	T-test	T=-11.76	0.0000
LH197	251.64	9.13	50		DF=92	

Year of tests:	1999 E. Fairground
Location of tests:	Williamsburg, Iowa

Mann-Whitney Confidence Interval and Test

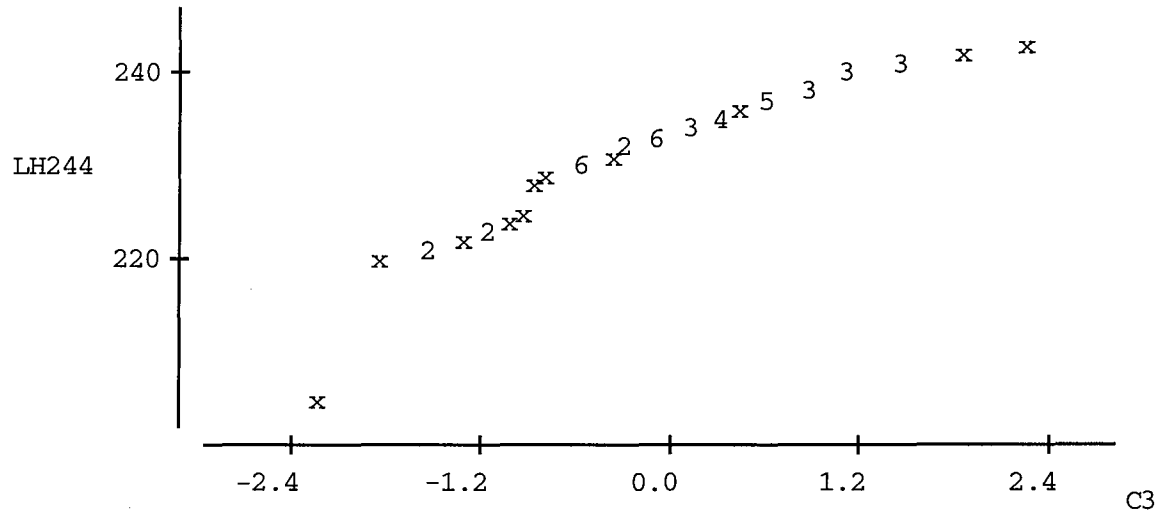
LH244 N = 50 Median = 233.00
LH197 N = 50 Median = 253.00

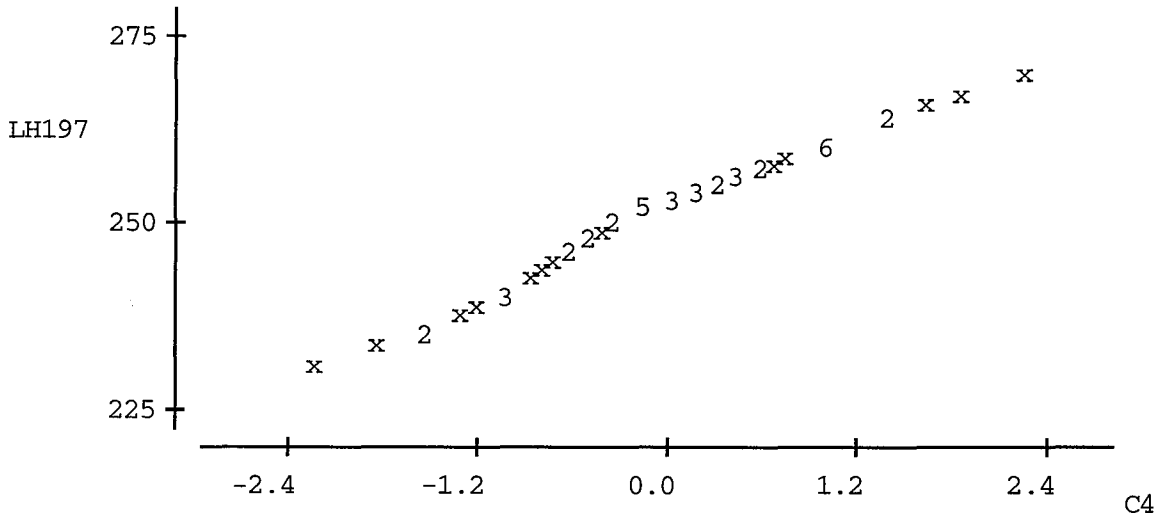
Point estimate for ETA1-ETA2 is -19.00
95.0 pct c.i. for ETA1-ETA2 is (-22.00,-16.00)

W = 1405.5

Test of ETA1 = ETA2 vs. ETA1 n.e. ETA2 is significant at 0.0000
The test is significant at 0.0000 (adjusted for ties)

LH244 Plant Height VS LH197 Plant Height
1999 E. Fairground





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FORM SD-470-28
(9-1-92)

EXHIBIT C
(Corn; Maize)

United States Department of Agriculture, Agricultural Marketing Service
Science Division, Plant Variety Protection Office
National Agricultural Library Building, Room 500
Beltsville, MD 20705

OBJECTIVE DESCRIPTION OF VARIETY
CORN (*Zea mays* L.)

Name of Applicant(s)	Variety Seed Source	Variety Name or Temporary Designation
HOLDEN'S FOUNDATION SEEDS, L.L.C.	IOWA 1998	LH244

Address (Street & No., or R.F.D. No., City, State, Zip Code and Country)
503 SOUTH MAPLEWOOD AVE
WILLIAMSBURG, IA 52361

FOR OFFICIAL USE

PVPO Number

Place the appropriate number that describes the varietal characters typical of this inbred variety in the spaces below. Right justify whole numbers by adding leading zeroes if necessary. Completeness should be striven for to establish an adequate variety description. Traits designated by a '*' are considered necessary for an adequate variety description and must be completed.

COLOR CHOICES (Use in conjunction with Munsell color code to describe all color choices; describe #25 and #26 in Comments section):

01=Light Green	06=Pale Yellow	11=Pink	16=Pale Purple	21=Buff
02=Medium Green	07=Yellow	12=Light Red	17=Purple	22=Tan
03=Dark Green	08=Yellow-Orange	13=Cherry Red	18=Colorless	23=Brown
04=Very Dark Green	09=Salmon	14=Red	19=White	24=Bronze
05=Green-Yellow	10=Pink-Orange	15=Red & White	20=White Capped	25=Variegated (Describe)
				26=Other (Describe)

STANDARD INBRED CHOICES (Use the most similar (in background and maturity) of these to make comparisons based on grow-out trial data):

Yellow Dent Families:		Yellow Dent (Unrelated):	Sweet Corn:
Family	Members	Co109, ND246,	C13, Iowa5125, P39, 2132
B14	CM105, A632, B64, B68	Oh7, T232	
B37	B37, B76, H84	W117, W153R	Popcorn:
B73	N192, A679, B73, NC268	W182BN	SG1533, 4722, HP301, HP7211
C103	Mo17, Va102, Va35, A682		
Oh43	A619, MS71, H99, Va26	White Dent:	Pipecorn:
WF9	W64A, A554, A654, Pa91	CI66, H105, Ky228	Mo15W, Mo16W, Mo24W

1. TYPE: (describe intermediate types in Comments section)

* 2 1=Sweet 2=Dent 3=Flint 4=Flour 5=Pop 6=Ornamental 7=Pipecorn

Standard Inbred Name B73
2

2. REGION WHERE DEVELOPED IN THE U.S.A.:

* 2 1=Northwest 2=Northcentral 3=Northeast 4=Southeast 5=Southcentral 6=Southwest 7=Other _____

Standard Seed Source IOWA STATE UNIV.
2

3. MATURITY (In Region Best Adaptability: show Heat Unit formula in "Comments" section):

	DAYS	HEAT UNITS		DAYS	HEAT UNITS
*	71	14260	From emergence to 50% of plants in silk	75	15405
*	70	13990	From emergence to 50% of plants in pollen	73	14845
			From 10% to 90% pollen shed		
(*)			From 50% silk to optimum edible quality		
			From 50% silk to harvest at 25% moisture		

4. PLANT:	Standard Deviation	Sample Size		Standard Deviation	Sample Size
* 215.4 cm Plant Height (to tassel tip)	6.61	50	198.3	8.50	50
* 96.6 cm Ear Height (to base of top ear node)	6.26	50	99.9	5.21	50
10.5 cm Length of Top Ear Internode	1.22	50	9.9	1.07	50
0.0 Average Number of Tillers	0.0	50	0.0	0.0	50
* 1.0 Average Number of Ears per Stalk	0.0	50	1.7	.40	50
2 Anthocyanin of Brace Roots: 1=Absent 2=Faint 3=Moderate 4=Dark			3		

Application Variety Data	Page 2		Standard Inbred Data		
5. LEAF:	Standard Deviation	Sample Size		Standard Deviation	Sample Size
* 8.8 cm Width of Ear Node Leaf	.58	50	9.5	.70	50
* 73.6 cm Length of Ear Node Leaf	2.84	50	785	3.86	50
* 6 Number of leaves above top ear	.61	50	5	.56	50
29 degrees Leaf Angle (measure from 2nd leaf above ear at anthesis to stalk above leaf)	4.10	50	17	3.98	50
* 02 Leaf Color (Munsell code 5GY 4/4)			02 (Munsell code 5GY 4/4)		
6 Leaf Sheath Pubescence (Rate on scale from 1=none to 9=like peach fuzz)			4		
2 Marginal Waves (Rate on scale from 1=none to 9=many)			1		
3 Longitudinal Creases (Rate on scale from 1=none to 9=many)			3		
6. TASSEL:	Standard Deviation	Sample Size		Standard Deviation	Sample Size
* 09 Number of Primary Lateral Branches	1.74	50	8	1.39	50
25 Branch Angle from Central Spike	8.15	50	14	6.58	50
*426 cm Tassel Length (from top leaf collar to tassel tip)	4.57	50	364	6.52	50
6 Pollen Shed (Rate on scale from 0=male sterile to 9=heavy shed)			6		
07 Anther Color (Munsell code 5Y 8/8)			16 (Munsell code 5RP 5/4)		
02 Glume Color (Munsell code 5GY 5/6)			02 (Munsell code 5GY 5/6)		
1 Bar Glumes (Glume Bands): 1=Absent 2=Present			1		
7a. EAR (Unhusked Data):					
* 12 Silk Color (3 days after emergence) (Munsell code 2.5R 5/6)			01 (Munsell code 2.5GY 8/6)		
01 Fresh Husk Color (25 days after 50% silking) (Munsell code 5GY 6/6)			01 (Munsell code 5GY 5/6)		
21 Dry Husk Color (65 days after 50% Silking) (Munsell code 7.5YR 7/4)			21 (Munsell code 7.5YR 7/4)		
* 1 Position of Ear at Dry Husk Stage: 1=Upright 2=Horizontal 3=Pendent			3		
5 Husk Tightness (Rate on scale from 1=very loose to 9=very tight)			5		
2 Husk Extension (at harvest): 1=Short (ears exposed) 2=Medium (<8 cm) 3=Long (8-10 cm beyond ear tip) 4=Very Long (>10 cm)			3		
7b. EAR (Husked Ear Data):	Standard Deviation	Sample Size		Standard Deviation	Sample Size
* 170 cm Ear Length	1.20	50	140	1.19	50
* 421 mm Ear Diameter at mid-point	2.20	50	426	2.80	50
1239 gm Ear Weight	25.81	50	830	23.92	50
* 16 Number of Kernel Rows	1.57	50	16	1.64	50
1 Kernel Rows: 1=Indistinct 2=Distinct			2		
1 Row Alignment: 1=Straight 2=Slightly Curved 3=Spiral			1		
162 cm Shank Length	3.35	50	88	1.89	50
2 Ear Taper: 1=Slight 2=Average 3=Extreme			1		
Application Variety Data			Standard Inbred Data		

Note: Use chart on first page to choose color codes for color traits.

8. KERNEL (Dried):	Standard Deviation	Sample Size	Standard Deviation	Sample Size
107 mm Kernel Length	.70	50	105	.90	50
8.2 mm Kernel Width	.60	50	81	.50	50
4.9 mm Kernel Thickness	.30	50	50	.90	50
381 % Round Kernels (Shape Grade)	5.38	15	359	6.34	15
1 Aleurone Color Pattern: 1=Homozygous 2=Segregating			1		
(*) 19 Aleurone Color (Munsell code 2.5Y 8/2)			19 (Munsell code 2.5Y 8/2)		
* 07 Hard Endosperm Color (Munsell code 2.5Y 8/8)			07 (Munsell code 2.5Y 5/6)		
* 03 Endosperm Type: 1=Sweet (su1) 2=Extra Sweet (sh2) 3=Normal Starch 4=High Amylose Starch 5=Waxy Starch 6=High Protein 7=High Lysine 8=Super Sweet (se) 9=High Oil 10=Other			03		
246 gm Weight per 100 Kernels (unsized sample)	.49	15	234	.45	15

9. COB:	Standard Deviation	Sample Size	Standard Devaition	Sample Size
* 331 mm Cob Diameter at mid-point	1.80	50	327	2.10	50
10 Cob Color (Munsell code 10R 6/6)			14 (Munsell code 10R 5/6)		

10. DISEASE RESISTANCE (Rate from 1 (most susceptible) to 9 (most resistant); leave blank if not tested; leave Race or Strain Options blank if polygenic):

A. Leaf Blights, Wilts, and Local Infection Diseases	
Anthracnose Leaf Blight (*Colletotrichum graminicola*)	
Common Rust (*Puccinia sorghi*)	
Common Smut (*Ustilago maydis*)	
6 Eyespot (*Kabatiella zeae*)	
Goss's Wilt (*Clavibacter michiganense* spp. *nebraskense*)	
Gray Leaf Spot (*Cercospora zeae-maydis*)	
5 Helminthosporium Leaf Spot (*Bipolaris zeicola*) Race 3	7 Race 3
5 Northern Leaf Blight (*Exserohilum turcicum*) Race 1	3 Race 2
Southern Leaf Blight (*Bipolaris maydis*) Race	Race
Southern Rust (*Puccinia polysora*)	
Stewart's Wilt (*Erwinia stewartii*)	
Other (Specify)	
B. Systemic Diseases	
Corn Lethal Necrosis (MCMV and MDMV)	
Head Smut (*Sphacelotheca reiliana*)	
Maize Chlorotic Dwarf Virus (MCDV)	
Maize Chlorotic Mottle Virus (MCMV)	
Maize Dwarf Mosaic Virus (MDMV) Strain	Strain
Sorghum Downy Mildew of Corn (*Peronosclerospora sorghi*)	
Other (Specify)	
C. Stalk Rots	
Anthracnose Stalk Rot (*Colletotrichum graminicola*)	
Diplodia Stalk Rot (*Stenocarpella maydis*)	
Fusarium Stalk Rot (*Fusarium moniliforme*)	
Gibberella Stalk Rot (*Gibberella zeae*)	
Other (Specify)	
D. Ear and Kernel Rots	
Aspergillus Ear and Kernel Rot (*Aspergillus flavus*)	
Diplodia Ear Rot (*Stenocarpella maydis*)	
Fusarium Ear and Kernel Rot (*Fusarium moniliforme*)	
Gibberella Ear Rot (*Gibberella zeae*)	
Other (Specify)	

Note: Use chart on first page to choose color codes for color traits.

Standard Inbred Data 2000 00122

11. INSECT RESISTANCE (Rate from 1 (most susceptible) to 9 (most resistant); leave blank if not tested):

	Standard Deviation	Sample Size		Standard Deviation	Sample Size
__ Banks Grass Mite (*Oligonychus pratensis*)			__		
Corn Earworm (*Helicoverpa zea*)					
__ Leaf-Feeding			__		
Silk Feeding :					
___.__ mg larval wt.	_____	____	___.__	_____	____
__ Ear Damage			__		
__ Corn Leaf Aphid (*Rhopalosiphum maidis*)			__		
__ Corn Sap Beetle (*Carpophilus dimidiatus*)			__		
European Corn Borer (*Ostrinia nubilalis*)					
__ 1st Generation (Typically Whorl Leaf Feeding)			__		
__ 2nd Generation (Typically Leaf Sheath-Collar Feeding)			__		
Stalk Tunneling :					
___.__ cm tunneled/plant	_____	____	___.__	_____	____
Fall Armyworm (*Spodoptera frugiperda*)			__		
__ Leaf-Feeding			__		
Silk-Feeding :					
___.__ mg larval wt.	_____	____	___.__	_____	____
__ Maize Weevil (*Sitophilus zeamaize*)			__		
__ Northern Rootworm (*Diabrotica barberi*)			__		
__ Southern Rootworm (*Diabrotica undecimpunctata*)			__		
Southwestern Corn Borer (*Diatraea grandiosella*)					
__ Leaf Feeding			__		
Stalk Tunneling :					
___.__ cm tunneled/plant	_____	____	___.__	_____	____
__ Two-spotted Spider Mite (*Tetranychus urticae*)			__		
__ Western Rootworm (*Diabrotica virgifera virgifera*)			__		
__ Other (Specify) _____			__ _____		

12. AGRONOMIC TRAITS:

7 Stay Green (at 65 days after anthesis) (Rate on a scale from 1=worst to 9=excellent.)	5
__0.0__ % Dropped Ears (at 65 days after anthesis)	__0.0__
__0.0__ % Pre-anthesis Brittle Snapping	__0.0__
__0.0__ % Pre-anthesis Root Lodging	__0.0__
__0.0__ % Post-anthesis Root Lodging (at 65 days after anthesis)	__0.0__
___.__ Kg/ha Yield of Inbred Per Se (at 12-13% grain moisture)	___.__

13. MOLECULAR MARKERS: (0=data unavailable; 1=data available but not supplied; 2=data supplied)

0 Isozymes 0 RFLP's 0 RAPD's

REFERENCES:

Butler, D.R. 1954. A System for the Classification of Corn Inbred Lines. PhD Thesis, Ohio State University.
Emerson, R.A., G.W. Beadle, and A.C. Fraser. 1935. A Summary of Linkage Studies in Maize. Cornell A.E.S., Mem. 180.
Farr, D.F., G.F. Bills, G.P. Chamuris, A.Y. Rossman. 1989. Fungi on Plant and Plant Products in the United States. The American Phytopathological Society, St. Paul, MN.
Inglett, G.E. (Ed.) 1970. Corn: Culture, Processing, Products. Avi Publishing Company, Westport, CT.
Jugenheimer, R.W. 1976. Corn: Improvement, Seed Production, and Uses. John Wiley & Sons. New York.
McGee, D.C. 1988. Maize Diseases. APS Press, St. Paul, MN. 150 pp.
Munsell Color Chart for Plant Tissues. Macbeth. P.O. Box 230. Newburgh, N.Y. 12551-0230
The Mutants of Maize. 1968. Crop Science Society of America. Madison, WI.
Shurtleff, M.C. 1980. Compendium of Corn Diseases. APS Press, St. Paul, MN. 105 pp.
Sprague, G.F., and J.W. Dudley (Editors). 1988. Corn and Corn Improvement, Third Edition. Agronomy Monograph 18. ASA, CSSA, SSSA. Madison, WI.
Stringfield, G.H. Maize Inbred Lines of Ohio. Ohio A.E.S., Bul. 831. 1959.
U.S. Department of Agriculture. 1936, 1937. Yearbook.

COMMENTS (eg. state how heat units were calculated, standard inbred seed source, and/or where data was collected. Continue in Exhibit D):

$$GDD = \frac{Tmax + Tmin}{2} - 50°F$$

$Tmax \leq 86°F$

$Tmin \geq 50°F$

STANDARD SEED SOURCE: IOWA STATE UNIVERSITY DATA COLLECTED @ WILLIAMSBURG, IA 1999

Additional Description of the Inbred

Exhibit D

LH244 is a medium season field corn inbred line with a Stiff Stalk family background that is best adapted to the central regions of the corn belt. LH244 flowers similar to one day earlier than LH198. In the seed production field, LH244 appears to be an excellent seed parent.

In hybrid combinations, LH244 has demonstrated high yield potential, improved root strength and very good combining ability. LH244 hybrids display a long ear and very good late season plant intactness. The harvest moistures of LH244 crosses are 0.5% higher than comparable LH198 crosses.

JMS 11/20/01

After some thought and evaluation, I have concluded that the reason for the large standard deviations in my statistical analysis is poor experimental design. I neglected to take into account the effect the end plants in the row have in my analysis. One to sometimes four plants at the end of each row have a dramatic effect on the standard deviation of the individual plants being evaluated. My understanding of this effect on this statistical function and its contribution to variance components was poor. To correct this flaw in my analysis, I will not allow my technician to measure these end plants. I will also more closely monitor the growth and uniformity of the individual plants in the row being evaluated.

REPRODUCE LOCALLY. *Include form number and date on all reproductions.* FORM APPROVED - OMB NO. 0581-0

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
HOLDEN'S FOUNDATION SEEDS L.L.C.	EX 4713	LH244

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*	5. TELEPHONE *(include area code)*	6. FAX *(include area code)*
503 S. MAPLEWOOD AVENUE PO BOX 839 WILLIAMSBURG, IA 52361	(319)668-1100	(319)668-2453
	7. PVPO NUMBER 200000122	

8. Does the applicant own all rights to the variety? *Mark an "X" in appropriate block.* If no, please explain. [X] YES [ ] NO

9. Is the applicant *(individual or company)* a U.S. national or U.S. based company? [X] YES [ ] NO
If no, give name of country _____

10. Is the applicant the original owner? [X] YES [ ] NO *If no, please answer the following:*

a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)?

[ ] YES [ ] NO *If no, give name of country* _____

b. If original rights to variety were owned by a company, is the original owner(s) a U.S. based company?

[ ] YES [ ] NO *If no, give name of country* _____

11. Additional explanation on ownership *(If needed, use reverse for extra space):*

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or nation of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.